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ABSTRACT

A step-by-step examination is made of organized language instruction in which all language teaching activities relate to a theme chosen from the science, social studies, or math curriculum. The first step is to choose a topic of interest. The second step is to find out what is already known about the topic, decide what extra is needed to be learned, and gather materials. Step three involves developing and organizing activities, and the final step involves identifying objectives. The suggestion is made that a content-based thematic unit is an effective method for teaching English as a Second Language (ESL). A description of various kinds of units is provided as well as guidelines for planning units (pre-planned or jointly-planned). A resource list that gives additional information and insight into this subject is included, followed by a description of a completed content- based teaching unit that was designed for elementary school ESL students. (GLR)

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HOW TO PLAN CONTENT-BASED TEACHING UNITS FOR ESL

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This is a how-to paper, but I'm going to take a moment to address the what and the why of content-based teaching units before I get to the how. First of all, what am I talking about? A content-based teaching unit is a way of organizing language instruction so that all language teaching activities relate to a theme which is chosen from the science, social studies or math curriculum. A unit may be of any length - 1 week or a whole year, and its theme may come from the grade-level curriculum of the students in the class, or it may simply be something which everybody is interested in learning about. There is a difference between these units and the topical units on food, clothing, body parts, etc., which language teachers have always used. In these units, students are using language to learning something new about the topic, while in traditional topical units, students were merely learning new labels for content they already knew.

As to why you should want to teach this way, I probably don't have to convice you that content-based thematic units are a great way to teach ESL; you wouldn't be here if you weren't already interested in them. But I want you to know that there is a large body of work in several disciplines which provides a sound theoretical basis for teaching language through thematic units. From a sociocultural/ sociopolitical tradition, we have work by Vygotsky, Scribner and Cole, and others, which tells us of the importance of social interaction and collaboration for effective learning; both of these occur when units are co-planned by teacher and students. From a second language

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acquisition tradition, we have work by Halliday, Krashen, and others, showing that language is learned better when it is used to do something else, rather than when the focus of the learning is on the language itself. From a language and literacy development tradition, we have work by the Goodmans, Edelsky, and others, showing that parts of language are learned better in the context of a meaningful whole, and that language should not be separated from the content which it conveys. And from an experienced teacher's tradition, I would add that unit teaching is more fun! I would much rather talk about elephants than infinitives, and so would most kids!

There are different kinds of units, depending on who does the planning. Sometimes you can get hold of units which are totally pre-planned by somebody else - a teacher across the hall, a curriculum resource person, a book or magazine author, a workshop presenter... all you have to do is follow that person's plans. These units are very useful as models and guides for how to go about planning your own, and in a pinch they are certainly better than going page by page through the teacher's guide of I Like English, but they cannot meet your particular needs as well as a unit which you plan yourself. Since there is no how-to involved for you in their planning, I won't talk about them any further.

Next are units which are completely pre-planned by the teacher before they are taught. The topic may be chosen with student input, or at least be based on known student interests, but the teacher plans all the activities which will be included in the unit before it is presented. A third kind of unit is one where the teacher and students together choose the topic and negotiate the learning activities; in

this case planning is an on-going activity which occurs during the course of the unit. Various combinations are also possible; for example, the theme may be chosen jointly, then the teacher plans a few activities to get the unit going, and the rest are co-planned with the students. I will be referring to both teacher-planned and jointly-planned units as I go through the stages of unit development.

The how-to which follows is not original with me. It is a distillation of a lot of reading, attendance at many workshop presentations, my own teaching experience, and my experience guiding student teachers through the process of developing teaching units. It owes a lot to Barbara Flores and the teachers she worked with in Arizona, and to Mary Lou McCloskey and Scott Enright and the teachers they work with in Georgia. I'm sure they will all forgive me for stealing their ideas if the end result is that more teachers try this kind of teaching.

Your first step is to choose a topic. The key word here is interest, both yours and the children's. For a pre-planned unit, a topic might be suggested by something the students are doing in their mainstream classes (science books are good places to start), by a picture book or story book (almost any book can be a jumping-off point for a thematic unit), from a chance remark a student makes ("I've never seen a real saddle," uttered in response to a picture of a saddle in a reading workbook, prompted one teacher to bring a saddle to school, and turned into a unit on cowboys). It's all right to pick something you are really interested in, even if students have expressed no interest in that topic; if you are really excited by the topic, you will certainly be able to stir up student interest. Again, remember that

the topic is secondary to the activities which are developed around it; what it is is less important than that it lend itself to a variety of learning activities.

In jointly planned units, the topic is generally chosen through a brainstorming process. The teacher asks the students what they would like to learn about. First-graders typically answer things like "reading," "writing," "arithmetic;" in that case, the teacher can start it out by saying, "Well I want to learn about caterpillers (or whatever)." That's usually enough to get them going. The teacher guides the process; if a child suggests a topic which is too broad to be readily investigated, such as the human body, you can suggest that finding out everything about the human body might take a very long time, so is there any particular part of the body that they are most interested in? You write down all the topics suggested, and the class votes. Don't worry if you don't think you know much about the topic they choose; this is a joint learning experience, and you will learn right along with them. Don't worry either if the topic seems rather esoteric - something they would never study in the normal curriculum. Remember that your main objective is to teach your students language, and to teach them how to learn; the topic is simply a means for doing so.

The second step is to find out what you already know about the topic, decide what you need to learn, and gather materials. for teacher-prepared units, you begin by collecting <u>everything</u> you can possibly find about your topic; this includes materials which you can use with your students and background materials for your own information. Your goal is to learn as much as you can about your

topic, and to start getting ideas for possible activities. Begin the planning process as far ahead as you can, to allow ample time to send for free and inexpensive "stuff," wait for books to be returned to the library, collect pictures, etc. Don't overlook such obvious sources as basal readers and science and social studies books. Talk with other teachers. Read everything you can find about your topic. Find community resources related to your topic, either people who can come in and talk to the students, or places you can visit on field trips.

For jointly-planned units, this step is again done through brainstorming. After the topic is voted on, teachers get the students to tell what they already know about the topic, and all contributions are written on a chart. This process awakens the natural curiosity of children, and they are quick to come up with questions which they would like to find the answers to, which are also written on a chart. Teacher and students then start collecting all the information they can find about this particular topic. Start by going to your children's librarian, both in your school and at the public library. Have her (or him) help you locate every story book and content book in the library which deals with your topic. Don't forget film strips, moview, videos, records, tapes. Check them all out if you can and take them back to your classroom. As the unit progresses, you and the children will continue to collect pictures, magazine articles, models, charts, realia, and other related materials.

We'll talk about the next two steps together, because they are best done together. Step 3 is developing and organizing activities, and Step 4 is identifying objectives. Although we have traditionally been taught to begin with the objectives and then to develop activities

which will accomplish these objectives, experience has shown that more variety and creativity in activities are possible if the activities are developed independently of specific objectives. You should be familiar with the general ESL objectives for your learners, and you will keep these in mind as you develop the activities, so it is really a simultaneous process.

Brainstorming is a good way to come up with possible activities for a pre-planned unit. Begin with the ideas which came to you as you collected and read all your background material. Be as imaginative and creative as possible as you add to those activities; don't be afraid to go off into sub-areas and related themes. The curriculum web format is useful to help get away from traditional linear thinking and begin to see relationships in unexpected places. It also helps to enlist another person in this step, whether it be fellow teacher, friend, or spouse. Many times a person outside of the teaching profession will come up with ideas which a teacher used to more traditional curriculum might not think of.

After you have mapped out as many possible activities as you can think of, you will need to select those which seem most appropriate for your students and sequence them in some logical way. Plan an introductory activity which will get the students interested in the theme and awaken their curiosity about it. This might be a film strip or video, a good book, a field trip, or an experiment. In sequencing the unit activities, many teachers use a four-stage cycle of predict - observe - extend - create. The predict stage has students making hypotheses about the answers to questions they have asked; during the second stage, relevant data is gathered and recorded; in the third

stage students' knowledge base is extended as they confirm their observations through printed material; finally students enjoy stories, songs, and poems related to the theme of the unit, and create their own. While the basic strategy of following the steps used in scientific inquiry is valid, I find that in practice the stages overlap and repeat.

In a jointly-planned unit, the process of developing activities is one of teacher guidance and negotiation. You may have to suggest some activities, and you may have to modify your students' suggestions, but together you should be able to devise a plan for finding out the answers to the questions which the students have previously formulated. As activities are decided on, groups are often set up which are responsible for specific tasks. I like to have students find out as much as possible in experiential ways - through observations, interviews, experiments, etc., - and then try to corroborate that information through the use of printed resources. This teaches them the skills needed for finding information in printed sources without making them totally dependent on print for their learning, and also motivates them to want to use print to gain information while at the same time preventing them from developing blind faith in any single source of information. During the course of the unit, activities and groups will be revised when an activity is not achieving its goal, added to when new information changes the direction of the unit, and perhaps dropped if students are unable to answer a question or because of lack of materials. Don't forget to include story reading, poems and songs in your activities - students may think of them more as entertainment and not suggest them as learning activities.

The process of developing objectives for your unit is really quite simple if you have an ESL curriculum and/or content curricula containing objectives which your students are supposed to achieve. For both pre-planned and cooperatively planned units, you simply go through the objectives and match them with the activities you have chosen. You may have to revise some of the activities or add new ones in order to achieve certain objectives, but if you have a wide variety of activties, this step should not be difficult.

The next step is implementing the unit. For a pre-planned unit, you will have already planned all the activities, collected all the information, and prepared all the materials you need before you begin to teach the unit. The implementation is then a matter of following your prepared plans. For a cooperatively-planned unit, the implementation occurs simultaneously with the planning; the planning process is actually part of the unit. This allows for great flexibility in following the needs and interests of the students, and "sub-units" often develop during the course of teaching the unit.

For both types of units, scheduling and classroom organization are issues which have to be decided by individual teachers according to their situations, students, and teaching styles. A pull-out ESL teacher may want to spend all of her (his) teaching time doing unit activities, or may want to use the unit as a supplement to traditional grammar and vocabulary exercises. A self-contained ESL teacher may set aside part of the day for unit activities, or may integrate all of her (his) language and content teaching into the unit theme. Units are particularly suited for a whole language approach to teaching, but if you are more comfortable with basal readers and workbooks, you can just

reorganize these traditional materials into thematic units.

The final step is feedback and revision. Feedback comes from several sources - on-going evaluation of student progress during the teaching of the unit, formal testing for the achievement of objectives (if desired), student response to the theme and activities, and the teacher's own self-evaluation of individual unit components and the unit as a whole. We are all fairly well trained in evaluating students, but we are less well trained in evaluating ourselves, our planning, and the activities we do with our students. It is just as important to keep an on-going record of how well our activities and techniques work as it is to keep such a record of how our students are learning. If our students are not learning adequately, we must revise our activities and strategies, and without such a record we will not know what and how to revise. With a pre-planned unit, it is helpful when writing out lesson plans to leave a space after each activity for writing down comments about how it went. As soon as the unit is completed, go through it and revise activities as needed, so you won't forget things by the time you teach the unit again another year. Of course, you will also have to make further revisions before you teach it again so it will meet the needs and interests of a new group of students.

With a jointly-planned unit, it is not specific activities which need to be evaluated as much as types of activities. For example, information about students' reactions to a particular story would be less helpful than noting that you need to include an activity giving students more practice in using the library card catalogue. You may never do another unit on the same topic when students choose the topics

themselves, but they will certainly be using the card catalogue with any topic they choose. It is therefore helpful to keep a record of the kinds of activities which worked, or didn't work, particularly well; for those which didn't, note why not and what could be done to improve the activity. Review these notes before you begin each new unit, and keep them in mind as you guide students in planning unit activities.

To conclude, I would just like to encourage you to not be afraid of unit teaching. You don't have to spend the whole summer pre-planning a unit; you can do it with your students during class. You don't have to throw away all your textbooks; make them part of the unit. You don't have to give up what you have always been teaching; supplement it with mini-units (two or three activities based on a good book can be a unit). Try it; I think you'll like it. You will be amazed to find out how much fun teaching and learning can be when students are using language to find out something new about a topic they are interested in.

Guidelines for Planning Units

	Pre-planned	Jointly-planned
Topic	Teacher/student interests Grade-level content A favorite book	Brainstorm topics Vote
Materials	Collect materials Library Basals/other texts A-V Realia Community resources Free stuff	Brainstorm What we know What we want to learn Collect materials Teacher Students Librarian
Activities	Curriculum web Choose activities Sequence predict-observe-extend-create	Plan for finding answers to their questions Brainstorm/guide Group for tasks Revise as necessary
Objectives	Match activities to curriculum Revise activities as necessary	Match activities to curriculum Revise activities as necessary
Implement	After unit is totally planned All materials and activities planned and prepared	Implementation occurs simultaneously with planning
Revise	Evaluate student progress Evaluate activities Revise as necessary	Evaluate student progress Evaluate types of activities Incorporate into joint planning of next unit
Advantages	Beginning teachers More structure Students who need direction Schools with few resource materials available Variety of activities and materials	Experienced teachers Repertoire of ideas and tecniques Develop students' responsibility for own learning When there is no time to to pre-plan Flexibility

Resource List

Guidelines for Planning Units

Baker, Gwendolyn C. "Preparing a unit." In Planning and Organizing for Multicultural Instruction. Addison-Wesley, 1983.

Corwin, R., G.E. Hein, and D. Levin. "Weaving curriculum webs: The structure of nonlinear curriculum." Childhood Education 52(5):248-51, 1976.

Donoghue, Mildred R. and John F. Kunkle. "Planning for learning and teaching." In Second Languages in Primary Education. Newbury House Publishers, 1979.

Enright, D. Scott and Mary Lou McCloskey. Integrating English. Addison-Wesley, 1988.

Houston, Robert W., Frank H. Blackington III, and Horton C. Southworth. "Teaching strategy: The unit approach." In Professional Growth Through Student Teaching. Charles E. Merrill Books, 1965.

Completed Units and Ideas for Activities

Butzow, Carol M. and John W. Butzow. Science Through Children's Literature: An Integrated Approach. Teacher Ideas Press, 1989. (Available from Crane Publishing Co.)

Enright, D. Scott and Mary Lou McCloskey. "Rain makes applesauce" and "Heroes and superheroes." In Integrating English. Addison-Wesley, 1988.

Maculaitis-Cooke, Jean, and Mona Scheraga. The Complete ESL/EFL Resource Book. National Textbook Co., 1988. (Units on telephone, careers, landlords, and consumer education.)

McCloskey, Mary Lou, ed. Turn-On Units. Georgia State University, Atlanta, GA, Department of Early Childhood Education, 1987.

Nevarez, Sandra; Raquel C. Miretes, and Norma Ramirez. Experiences with Literature; A Thematic Whole Language Model for the K-3 Bilingual Classroom. Addison-Wesley, 1990. (Units are based on Spanish stories, but include stories in English for second language development; activities could be done in either language.)

Magazines:

Instructor. P.O. Box 6099, Duluth, MN 55806

Learning 90. P.O. Box 51593, Boulder, CO 80321

Nature Scope. National Wildlife Federation, 1412 16th St., N.W., Washington, DC 20036

Teaching Pre-K - 8. P.O. Box 912, Farmingdale, NY 11737

Songs, Poems, Books, etc.

Blackburn, G. Meredith III. Index to Poetry for Children and Young People. The H.W. Wilson Co., 1989.

Lima, Carolyn W. A to Zoo - Subject Access to Children's Picture Books, 2nd ed. R.R. Bowker Co., 1986.

My World. Science and social studies topics. Steck-Vaughn, P.O. Box 26015, Austin, TX, 78755. (Also Facts About, Animal World, Exploring Science, and other content-based book collections.)

Reading in the Content Areas. Rigby, P.O. Box 797, Crystal Lake, IL 60014. (Big and little books on science, math and social studies topics.)

Raffi. The Raffi Singable Songbook. Crown Publishers, Inc., 1988.

Raffi records: "Singable Songs for the Very Young," "More Singable Songs," "The Corner Grocery Store." Troubadour Records, Ltd.

Schneider, Bob. Sharing a Song: Whole Language Activities Through Music. Addison-Wesley, 1987. (Casette, activity book, video.)

Silverstein, Shel. A Light in the Attic. Harper and Row, 1981.

Silverstein, Shel. Where the Sidewalk Ends. Harper and Row.

Wild About Books. Thematic literature programs for grades 1-6. Sundance, Newtown Rd., P.O. Box 1326, Littleton, MA 01460.

Sources of Materials

Nehmer, Kathleen Suttles. Elementary Teachers Guide to Free Curriculum Materials, 46th ed. Educators Progress Service, Inc., 1989. (They also have guides for free materials in science, social studies, health and physical eduction, and guidance. Address is Educators Progress Service, Inc., 214 Center St., Randolph, WI 53956. Telephone (414) 326-3126.)

A UNIT ON CLOUDS FOR ELEMENTARY SCHOOL ESL STUDENTS

Developed by Suzanne Irujo, Boston University

Introduction

This unit was developed for ESL students at an intermediate level or above in oral ability. It may be used with students at any level of reading and writing ability by adapting the literacy activities to the level of the students. The activities were designed for students of approximately third or fourth grade age, but could also be adapted for older or younger students.

No specific objectives have been included because these would vary depending on the language ability and age level of the students. There is a wide enough range of activities so that individual teachers can easily match the objectives from their own ESL and/or content curricula with the activities described here. Since evaluation depends on the specific objectives of an activity, evaluation activities have not been included either.

The unit was planned to follow a general sequence of observe - predict - experiment - generalize - extend. The sequence of activities is not a rigid one, however, since many activities occur over a period of time, and therefore overlap with other activities. Teachers should feel free to re-arrange, add, delete and adapt activities to fit their own needs, their teaching styles, and the materials available.

Activities

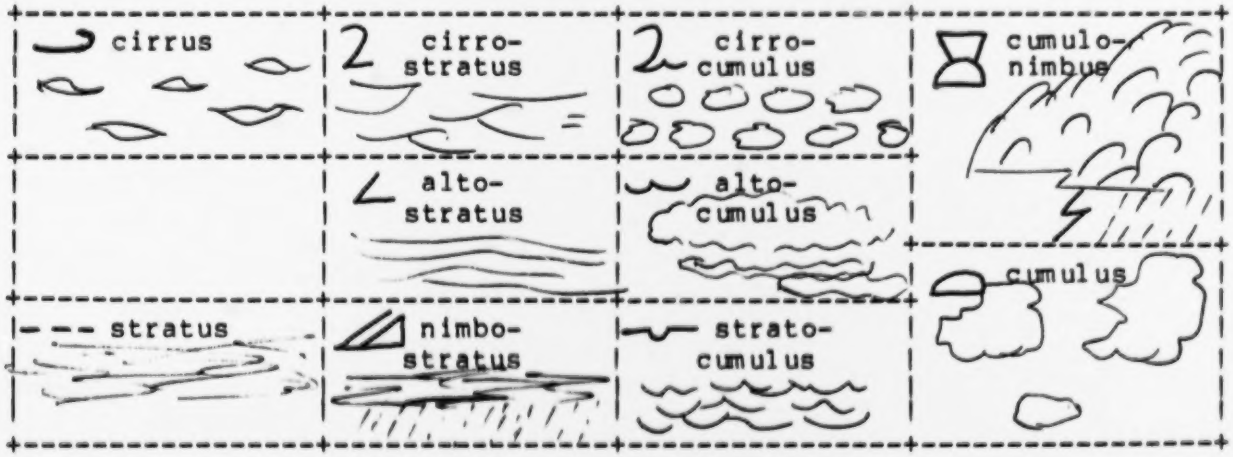
1) It Looked Like Spilt Milk, by Charles G. Shaw. This book was the inspiration for developing a unit on clouds, and works very well as an introduction to the unit. If possible, make a Big Book out of it (white construction paper pasted on dark blue poster board works very well) so you can capitalize on the book's predictability and teach predicting and confirming skills and phonics and other word-attack skills.

Introduce the book by showing the title page and asking students if they think it really is spilt milk. Have them predict what else it might be. Read the whole book, pointing to each word as it is read. If desired, certain words can be masked, students use the pictures to predict what they are, and their guesses are confirmed by looking for phonics clues.

Discuss whether clouds really do look like all those different things, and whether all clouds take on different shapes like this. Have students describe other kinds of clouds besides big white puffy ones, and record their contributions on chart paper. Tell them that they are going to try to find out why there are so many different kinds of clouds.

2) Observations of clouds and language experience descriptions of them. Take the class outside and observe the clouds. Come back in and have students draw the clouds they observed. Brainstorm words which could be used to describe these clouds. Write group or individual

language experience stories describing the clouds they saw and drew. Choose one child's picture and display it on a bulletin board set up to become a chart of the ten basic cloud types:



Repeat this activity over the course of the unit whenever there is a new kind of cloud to observe. Your goal is to observe and record all ten types of clouds, but that may not be possible, depending on where you live, the time of year and the vagaries of the weather.

3) Identify cloud types. Using all available content books about clouds and weather, at whatever level, students try to match the clouds they have just observed, drawn and described with pictures in the book so they can identify the name of the cloud. Since there may be differences of opinion about whether a certain type of cloud is the same as the one observed, this is a good activity to do in small groups. Each group must reach a consensus, and then all groups in the class must reach a consensus. The picture on the bulletin board chart is then labeled with both the name and the symbol used by weather forecasters.

Repeat this activity each time a new kind of cloud is observed. As more types of clouds are added to the chart, begin to make generalizations about the names of the clouds, the meaning of the names (cirrus = curl; cumulus = heap; stratus = sheet; alto = high; nimbus = rain), and how they combine. Continue these generalizations with each new cloud added.

From their observations of pictures in books, students will probably begin to recognize types of clouds which they have not yet seen as part of the unit. You may fill in the last few places on the chart from students' book knowledge if it appears that there are some types of clouds which you may never see.

4) Related stories. The Sky Dog by Brinton Turkle and A Bear in the Air by Leslie Williams deal with clouds which look like different things. Read both books to the children and discuss and draw their favorite cloud animals. Both books lend themselves to patterned writing exercises where students copy a simple pattern, fill in blanks in the pattern, and illustrate it:

Once I was a cloud,
But now I'm a _____.

There's a bear in the air,
There's a mouse in the _____,
There's a _____ in the _____,
etc.

This rhyming pattern can be extended, if desired, to form an on-going spelling lesson on rhyming words. Pick out all the words that sound like "air" from A Bear in the Air, and have students classify them according to their spelling pattern. Display the charts and add to them as students discover more rhyming words. The same can be done with "sky" rhymes, and any others you wish to do.

Students can make up and tell their own stories about cloud animals. Then have them write and illustrate their stories, using either a language experience approach or process writing.

5) Related literacy activities. Have students keep learning logs in which they keep a record of what they have learned and their reactions to it. This provides you with a way of keeping track of individual students' progress. If you have time to read and answer each student entry, learning logs become dialogue journals, which provide language models for the student, plus feedback on their learning.

Key Words are a good way of making sure that students internalize some of the vocabulary used in the unit. Ask each student every day what his or her favorite cloud word is that day. Write the word on a piece of oak tag, punch a hole in the corner, and put all of each student's words on a ring. Have the students illustrate their words, use them in sentences, share them with friends, use them in their writing activities, etc. Check periodically to make sure that each student can read all of his or her words.

Environmental print can be used to reinforce cloud vocabulary. Have students keep watch for the word "cloud" or any related words; they should bring in and display labels, pictures, or copies of any cloud-related words they see around them.

6) Experiments. After several different types of clouds have been observed, have students discuss the differences they have seen in height, shape, size, color, density, etc. On chart paper, summarize what they have already learned about different cloud types, and have them formulate questions that they would like to answer. Plan and carry out experiments to discover the answers to as many of their questions as possible. Each experiment should be recorded in some form - charts and graphs, language experience stories, or learning logs are a few ways of recording procedures and results. After each experiment, have students corroborate their findings with information from books. Possible experiments include:

a) How clouds are formed. You will need two clear glass bottles with tightly-fitting rubber corks, a football or volleyball pump with two inflating needles, and a way to cool the bottles (a refrigerator or a large container of ice water). Put a little bit of chalk dust into each bottle (for the cloud to form around), insert the corks, and

insert a needle through each cork. Blow as much air as possible into one bottle and remove the needle; the needle hole in the rubber cork should self-seal. Pump air into the other bottle with the football pump and remove the needle. Cool both bottles. A cloud should form in the bottle which was blown into. Guide the students to generalize that moisture is necessary for a cloud to form, that the air must be cold, and that clouds form around small particles of dust or other matter.

Reinforce the concept that clouds only form in cold air by going outside in the cold (if possible) and noting that breath forms a cloud in cold weather, but this does not happen inside or in warm weather. It might also be possible to boil water in a cold room and in a warm room and observe the differences in the steam cloud.

b) Why clouds are white and why some clouds (or parts of clouds) are gray. Show the students a block of ice and explain that it is made up of water (frozen) just as clouds are made up of water (vapor). Water is not white, and ice is not white, so why are clouds white? Show that ice can be made white by scratching it, and explain that when you do that, light reflects off the ice in different ways and makes it look white. The same thing happens with clouds.

The reason some clouds are gray can be demonstrated by holding a black cloth in front of a light bulb and showing that some light shines through because the cloth is not very thick. When the cloth is doubled, however, (or folded more if necessary), it becomes thicker and does not let the light through. Clouds become thicker, and grayer, when they carry more water.

c) What makes clouds rain? Observe raindrops on a window and notice how very small drops stay where they are, but when they combine with other drops they become larger and begin to run down the window. (If a rainy window is not available, you might be able to create one with a spray bottle.)

To demonstrate how cold makes water droplets combine and get larger, create a steam cloud and insert first a warm spoon and then a cold spoon into the steam. Have students compare what they see and generalize the reason why.

7) Stories related to why and when clouds rain. Read <u>The Rain Cloud</u> by Mary Rayner, <u>Wet Albert</u> by Michael and Joanne Cole, and <u>Bringing the Rain to Kapiti Plain</u> by Verna Aardema. <u>The Rain Cloud</u> tells about an understanding cloud which holds onto its rain until it will do some good instead of spoiling things for people. <u>Wet Albert</u> tells of a young boy who is constantly followed around and rained on by his own personal cloud. <u>Bringing the Rain to Kapiti Plain</u> tells of how a rain cloud is made to release its rain so the grass will be green, the cows will grow fat, and Ki-Pat will be happy. It is a cumulative story on the order of "The House That Jack Built," and would be very effective as a Big Book. The pictures are beautiful, but would not be easy to reproduce. Perhaps it could be enlarged on a color duplicating machine. Discuss and make charts of why the cloud in each book did or did not rain, and whether the reasons in the stories are scientific reasons or fictional reasons. A spin-off mini-unit on different ways people have tried to make it rain, including everything from Indian rain dances to cloud seeding, would be appropriate here.

<u>Bringing the Rain to Kapiti Plain</u> is a Reading Rainbow book; see if you can get hold of the PBS video. Another Reading Rainbow book

about clouds is The Cloud Book, by Tomie de Paola, which includes information about the ten types of clouds, myths about clouds, weather lore, forecasting from clouds, and wonderful illustrations! Have this book available for students to use in corroborating the information they get through experiential methods. If possible, the video would be another useful source of information about clouds.

8) Visit to or from a meteorologist. Have the students write to a local radio or television meteorologist, asking him or her to visit the class, or inquiring about making a field trip to the weather studio. If such a visit can be arranged, have the students synthesize everything they have learned about clouds just before the visit. They should then develop questions about the things they have not been able to discover on their own, in order to ask the meteorologist.

9) Weather forecasting. At least a week before the actual visit to or from a meteorologist, suggest to the students that they might like to try to see if they can forecast the weather from their cloud observations. Have each child keep a chart for a week, on which they record, at four-hour intervals, the type of cloud(s) they see at that time and any precipitation which is occurring. (Use the cloud symbols which were recorded on the bulletin board chart, plus simple symbols for kinds of precipitation.)

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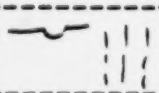
12 n							
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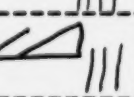
8 pm							

At the end of the week, have students make hypotheses based on their observations and try to confirm those hypotheses through print; then check them with the meteorologist during his or her visit.

10) Weather lore. Have students collect weather proverbs and sayings; sources of these sayings are books, asking teachers and other adults, and asking parents. In a multi-cultural class, weather lore can be compared cross-culturally and hypotheses made about any differences encountered (differences in climate, culture?). For each proverb or saying collected, have students determine through observations and readings whether the saying is generally true or not. Collect all of these sayings and corroborations of them into an illustrated booklet.

11) Cloud idioms. Present idioms related to clouds by showing students pictures of the literal meanings of the idioms. If they are not familiar with the idioms and can't guess them from the pictures, tell them what they are (cloud nine, every cloud has a silver lining, head in the clouds, cloudburst). Then discuss the idiomatic meanings. Have students collect other cloud and weather idioms.

Sing "Have You Ever Seen a Cloud Burst?" to the tune of "Ach, Du Lieber Augustine:"

Have you ever seen a cloud burst, a cloud burst, a cloud burst?
Have you ever seen a cloud burst? Now you tell me one.

(Other verses, which have nothing to do with clouds but are fun, include a horse fly (or house fly), a chimney sweep, a shoe box, a dish mop, and many others which you and your students think up.)

12) Other stories, songs and poems. Read The Sun and the Cloud by Kjell Ringi. (The pictures in this book would be very easy to copy, and it would make a very effective Big Book.) This book also lends itself to a spin-off mini-unit on the effects of sun and rain on plants. An easy experiment would be to plant three plants, give one sun only, one water only, and one both. That would settle the argument between the sun and the cloud about which was more needed by the seed.

If most songs you know about clouds seem too sophisticated for this age student, they can make up their own. The tunes of "Frere Jacques," "Three Blind Mice," and "Twinkle, Twinkle Little Star" are easy to compose to. The following song to the tune of "Three Blind Mice" is from the Open Sesame ESL series (Bert and Ernie's Red Book):

Three kinds of clouds, three kinds of clouds,
Each has a name, each has a name,
Stratus are flat and gray as the night,
Cirrus are curls of smoke in our sight,
Cumulus are fluffy and white,
Three kinds of clouds.

Three kinds of clouds, three kinds of clouds,
Each is a sign, each is a sign,
Stratus tell us of rain in the sky,
Cirrus say weather will change in time,
Cumulus tells us the day will be fine,
Three kinds of clouds.

Put the text of any songs and poems used with the students on large chart paper so they can follow the words as they sing or recite.

Have students write cinquains about clouds. Cinquains are five-line poems which follow a simple pattern and are very easy to write, especially when words related to the topic are brainstormed and categorized before students write their own poems (this is also a good grammar lesson). The first line of a cinquain is one word telling the

topic of the poem. The second line is two adjectives describing the topic. The third line is three gerunds describing the topic or telling what it does. The fourth line contains two more adjectives, and the fifth line is again one word, either the topic repeated, or a synonym or related word. Examples:

Clouds.
Puffy, fluffy;
Blowing, moving, changing;
Billowy, willowy;
Clouds.

Clouds.
Flat, gray;
Drizzly, misty, foggy;
Heavy, dark;
Rain.

Collections of cinquains and other poems can be illustrated with students' drawings or pictures they collect and bound into books.

13) Finish the products of the unit. Have students write up what they have learned about kinds of clouds, how they are formed, what makes a cloud rain, and how clouds can predict the weather. Illustrate and bind these books for use by another class studying clouds. Collect students' stories, poems and songs and bind them into books to be added to the class library. Make a book of weather sayings, proverbs and idioms.

14) Produce and perform a cloud play. This could be an original play written by the students, or it could be based on adaptations of books such as The Rain Cloud, The Sun and the Cloud, and Bringing the Rain to Kapiti Plain. Videotape the play if possible.

Partial List of Resources

Aardema, Verna. Bringing the Rain to Kapiti Plain. Dial Books for Young Readers, 1981.

Bendick, Jeanne. How to Make a Cloud. Parents' Magazine Press, 1971.

Cole, Michael and Joanne. Wet Albert. In People Need People, Holt Basic Reading, 1983.

de Paola, Tomie. The Cloud Book. Holiday House, 1975.

Dickinson, Terence. Exploring the Sky by Day. Camden House Publishing, 1988.

Lee, Joan. Watch for the Clouds. Harvey House, Inc., 1966.

Rayner, Mary. The Rain Cloud. Atheneum, 1980.

Shaw, Charles G. It Looked Like Spilt Milk. Harper and Row, 1947.

Turkle, Brinton. The Sky Dog. The Viking Press, 1969.

Williams, Leslie. A Bear in the Air. Stemmer House, 1980.

Ringi, Kjell. The Sun and the Cloud. Harper and Row, 1971.